UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/753,008	01/02/2001	Stefan Somlo	96700/658	1280

7590   04/14/2004

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EXAMINER
LU, FRANK WEI MIN

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 04/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/753,008	SOMLO ET AL.
	Examiner	Art Unit	
	Frank W Lu	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _24 March 2003_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _76-81_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _76-81_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _02 January 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _3/24/2003_.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   In applicant's response to previous restriction, applicant indicates that claims 1-75 has

been canceled in the amendment filed on October 24, 2001. After reviewing the restriction made

by previous examiner in other art unit and applicant's response filed on March 24, 2003, the

examiner agrees to withdraw the restriction made on March 11, 2003. Therefore, claims 76-81

will be examined.

Specification

2.   The disclosure is objected to because of the following informalities. (1) applicant

indicates that this instant application is a continuation of cases 09/385,752 and 08/651,999 in the

first sentence of the specification. However, it is unclear that applicant claims priority for the

cases 09/385,752 and 08/651,999 or not; (2) there are Figure 5A to 5G. However, the Brief

Description of the Figures only describes Figure 5; and (3) in page 12 of the specification, there

are several nucleotide sequences that have more than 10 nucleotides. However, these nucleotide

sequences are without SEQ ID Nos.

        Appropriate correction is required.

Claim Objections

3.   Claims 76 and 79 are objected to because of the following informality: "the PKD2 gene"

should be "PKD2 gene".

4.   Claim 79 is objected to because of the following informality: "wherein the mutation

comprises one or more deletion, insertion, point, or rearrangement mutations" should be

"wherein the mutation comprise deletion, insertion, point, or rearrangement mutation".

        Appropriate correction is required.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

6.   Claims 76-81 are rejected under 35 U.S.C. 112, first paragraph, because the specification,

while being enabling for performing the methods recited in claims 76-81 by comparing PKD2

gene in a polynucleotide sample with its wild-type PKD2 gene, does not reasonably provide

enablement for the methods recited in claims 76-81 by comparing PKD2 gene from one species

in a polynucleotide sample with a wild-type PKD2 gene from other species. The specification

does not enable any person skilled in the art to which it pertains, or with which it is most nearly

connected, to use the invention commensurate in scope with these claims.

        In *In re Wands*, 858 F.2d 731,737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) the court

considered the issue of enablement in molecular biology. The Court summarized eight factors to

be considered in a determination of "undue experimentation". These factors include: (a) the

quantity of experimentation necessary; (b) the amount of direction or guidance presented; (c) the

presence or absence of working examples; (d) the nature of the invention; (e) the state of the

prior art; (f) the relative skill of those in the art; (g) the predictability of the art; and (h) the

breadth of the claims. The Court also stated that although the level of skill in molecular biology

is high, results of experiments in molecular biology are unpredictable.

To begin, there is no direction or guidance to perform the methods recited in claims 76-

81 by comparing PKD2 gene from one species in a polynucleotide sample with a wild-type

PKD2 gene from other species. While the relative skill in the art is very high (the Ph.D. degree

with laboratory experience), there is no predictability whether the methods recited in claims 76-

81 can be performed by comparing PKD2 gene from one species in a polynucleotide sample with

a wild-type PKD2 gene from other species.

Claims 76-81 are directly to a method of detecting the presence or absence of a mutation

in the sequence of PKD2. The specification only describes a method of detecting the presence or

absence of a mutation in the sequence of PKD2 by comparing human PKD2 gene in a

polynucleotide sample with human wild-type gene. However, the specification does not provide

guidance for a method of detecting the presence or absence of a mutation in the sequence of

PKD2 by comparing PKD2 gene from one species in a polynucleotide sample with a wild-type

PKD2 gene from other species. Because the specification does not provide an evidence to show

that SEQ ID NO: 6 (human PKD2 with GeneBank Accession No: U50928) is identical among all

species, it is unclear whether a method of detecting the presence or absence of a mutation in the

sequence of PKD2 can be performed by comparing PKD2 gene from one species in a

polynucleotide sample with a wild-type PKD2 gene from other species. In fact, sequence

searching shows that SEQ ID NO: 6 (human PKD2) is only partially homologous to murine

PKD2 but is not identical to murine PKD2 (see attached results from sequence searching). This

suggests that it is impossible to perform the methods recited in claims 76-81 by comparing

PKD2 gene from one species in a polynucleotide sample with a wild-type PKD2 gene from other

species.

With these unpredictable factors, the skilled artisan will have no way to predict the

experimental results. Accordingly, it is concluded that undue experimentation is required to

make the invention as it is claimed. These undue experimentations at least includes to test

whether that the methods recited in claims 76-81 can be performed by comparing PKD2 gene

from one species in a polynucleotide sample with a wild-type PKD2 gene from other species.

7.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

8.   Claims 76-81 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

9.   Claim 76 is rejected as vague and indefinite. Since the step (a) of the claim does not

indicate that a polynucleotide sample has PKD2 gene, it is unclear how the difference between

the polynucleotide sample and the reference wild-type PKD2 sequence are mutations of PKD 2

gene. Furthermore, the claim does not indicate what gene has "mutations which comprise one or

more deletion, insertion, point, or rearrangement mutations". Please clarify.

10.   Claim 76 is rejected as vague and indefinite. Although the claim is directed to a method

of detecting the presence or absence of a mutation in the sequence of PKD2 gene, there is no

method step in the claim for Claim 76 is rejected as vague and indefinite and the goal (preamble)

can not reach. Please clarify.

11.   Claim 79 is rejected as vague and indefinite. Since the step (a) of the claim does not

indicate that a polynucleotide sample has PKD2 gene, it is unclear how performing sequence

analysis of the polynucleotide sample can detect the presence or absence of a mutation in the

sequence of the PKD2 gene of the subject. Please clarify.

12.   Claim 79 recites the limitation "the sequence of the PKD2 gene of the subject" in the

claim. There is insufficient antecedent basis for this limitation in the claim because step (a) does

not indicate that a subject has a PDK2 gene. Please clarify.

Double Patenting

13.   The nonstatutory double patenting rejection is based on a judicially created doctrine
grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or
improper timewise extension of the "right to exclude" granted by a patent and to prevent possible
harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed.
Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686
F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA
1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).
        A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to
overcome an actual or provisional rejection based on a nonstatutory double patenting ground
provided the conflicting application or patent is shown to be commonly owned with this
application. See 37 CFR 1.130(b).
        Effective January 1, 1994, a registered attorney or agent of record may sign a terminal
disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37
CFR 3.73(b).

14.   Claims 76-81 are rejected under the judicially created doctrine of obviousness-type

double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,228,591 B1.

Although the conflicting claims are not identical, they are not patentably distinct from each other

because the examined claims in this instant application is either anticipated by, or would have

been obvious over, the reference claims. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010

(Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*,

686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA

1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969). Although claims 76

and 79 in this instant application are not identical to claim 1 of US Patent No. 6,228,591 B1,

claim 1 in US Patent 6,228,591 B1 is directed to the same subject matter and fall entirely within

the scope of claims 76 and 79 in this instant application. In other words, claims 76 and 79 in this

instant application are anticipated by claim 1 of US Patent No. 6,228,591 B1. Note that claims

77, 78, 80, and 81 are identical to claims 2 and 3 of US Patent No. 6,228,591 B1.

Conclusion

15.   No claim is allowed.

16.   Papers related to this application may be submitted to Group 1600 by facsimile

transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal

Mall 1. The faxing of such papers must conform with the notices published in the Official

Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG

94 (December 28, 1993)(See 37 CAR § 1.6(d)). The CM Fax Center number is either (703) 872-

9306 or (703)305-3014.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Frank Lu, Ph.D., whose telephone number is (571)272-0746.

The examiner can normally be reached on Monday-Friday from 9 A.M. to 5 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Gary Benzion, can be reached on (571)272-0782.

Any inquiry of a general nature or relating to the status of this application should be

directed to the Chemical Matrix receptionist whose telephone number is (703) 308-0196.

Frank Lu

PSA

April 9, 2004

NCBI   results of **BLAST**

BLASTN 2.2.8 [Jan-05-2004]

Reference:
Altschul, Stephen F., Thomas L. Madden, Alejandro A. Schäffer,
Jinghui Zhang, Zheng Zhang, Webb Miller, and David J. Lipman (1997),
"Gapped BLAST and PSI-BLAST: a new generation of protein database search
programs", Nucleic Acids Res. 25:3389-3402.

RID: 1081784038-16067-188708913800.BLASTQ3

Query=
         (5073 letters)

Database: All GenBank+EMBL+DDBJ+PDB sequences (but no EST, STS,
GSS, or phase 0, 1 or 2 HTGS sequences)
         2,226,501 sequences; 10,398,606,914 total letters

If you have any problems or questions with the results of this search
please refer to the **BLAST FAQs**

Taxonomy reports

Distribution of 3819 Blast Hits on the Query Sequence

Mouse-over to show defline and scores. Click to show alignments
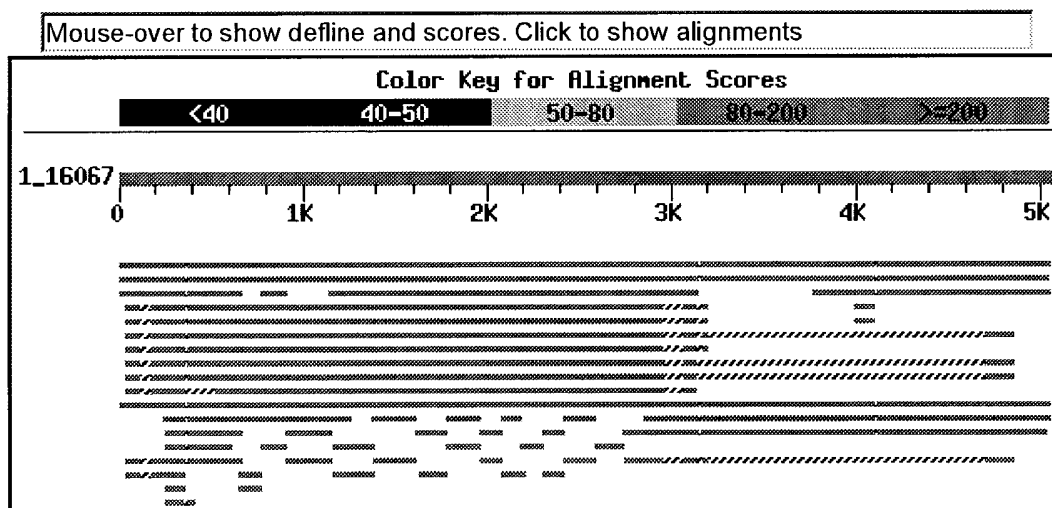
	Score	E
Sequences producing significant alignments:	(bits)	Value

gi|33286447|ref|NM_000297.2| Homo sapiens polycystic kidney...	5453	0.0	
gi|1373168|gb|U50928.1|HSU50928 Human autosomal dominant po...	5453	0.0	
gi|1477691|gb|U56813.1|HSU56813 Human polycystwin mRNA, par...	3895	0.0	

gi|38565985|gb|BC062969.1| Mus musculus polycystic kidney d...	2319	0.0	
gi|31419361|gb|BC053058.1| Mus musculus polycystic kidney d...	2319	0.0	
gi|4150864|emb|Y13278.1|MMPOLCYST Mus musculus mRNA for pol...	2311	0.0	
gi|26343500|dbj|AK053502.1| Mus musculus 0 day neonate eyeb...	2311	0.0	
gi|2558834|gb|AF014010.1|AF014010 Mus musculus polycystic k...	2309	0.0	
gi|31543486|ref|NM_008861.2| Mus musculus polycystic kidney...	2309	0.0	
gi|34536625|dbj|AK128961.1| Mus musculus cDNA fis, clone TR...	2165	0.0	
gi|11128446|gb|AC084732.1|AC084732 Homo sapiens BAC clone R...	1742	0.0	
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gi|3126903|gb|AF004873.1|HSPKD15 Homo sapiens autosomal dom...	1655	0.0	
gi|4107256|emb|Y14120.1|MMY14120 Mus musculus mRNA for poly...	860	0.0	
gi|3126889|gb|AF004859.1|HSPKD01 Homo sapiens autosomal dom...	694	0.0	
gi|3126892|gb|AF004862.1|HSPKD04 Homo sapiens autosomal dom...	502	e-138	
gi|15871680|emb|AJ327262.1|HSA327262 Homo sapiens genomic s...	464	e-127	
gi|3126894|gb|AF004864.1|HSPKD06 Homo sapiens autosomal dom...	460	e-125	
gi|3126893|gb|AF004863.1|HSPKD05 Homo sapiens autosomal dom...	450	e-122	
gi|15875582|emb|AJ331164.1|HSA331164 Homo sapiens genomic s...	381	e-101	
gi|3126896|gb|AF004866.1|HSPKD08 Homo sapiens autosomal dom...	365	6e-97	
gi|3126895|gb|AF004865.1|HSPKD07 Homo sapiens autosomal dom...	335	5e-88	
gi|3126901|gb|AF004871.1|HSPKD13 Homo sapiens autosomal dom...	327	1e-85	
gi|4150862|emb|Y14105.1|MMY14105 Mus musculus pkd2 exon 1 a...	321	8e-84	L
gi|3126902|gb|AF004872.1|HSPKD14 Homo sapiens autosomal dom...	295	5e-76	
gi|4107461|emb|Y14110.1|MMY14110 Mus musculus pkd2 exon 6	278	1e-70	L
gi|3126891|gb|AF004861.1|HSPKD03 Homo sapiens autosomal dom...	266	4e-67	
gi|7531965|gb|AF004867.2|HSPKD09 Homo sapiens autosomal dom...	240	2e-59	
gi|3126900|gb|AF004870.1|HSPKD12 Homo sapiens autosomal dom...	238	9e-59	
gi|3126890|gb|AF004860.1|HSPKD02 Homo sapiens autosomal dom...	230	2e-56	
gi|4107459|emb|Y14108.1|MMY14108 Mus musculus pkd2 exon 4	226	3e-55	L
gi|3126899|gb|AF004869.1|HSPKD11 Homo sapiens autosomal dom...	200	2e-47	
gi|3126898|gb|AF004868.1|HSPKD10 Homo sapiens autosomal dom...	200	2e-47	
gi|4107463|emb|Y14112.1|MMY14112 Mus musculus pkd2 exon 8	198	8e-47	L
gi|10121558|gb|AF242389.1|AF242389 Mus musculus autosomal d...	196	3e-46	L
gi|4107458|emb|Y14107.1|MMY14107 Mus musculus pkd2 exon 3	170	2e-38	L
gi|15872509|emb|AJ328091.1|HSA328091 Homo sapiens genomic s...	168	7e-38	
gi|4107468|emb|Y14113.1|MMY14113 Mus musculus pkd2 exon 9	161	2e-35	L
gi|15871676|emb|AJ327258.1|HSA327258 Homo sapiens genomic s...	157	3e-34	
gi|4107472|emb|Y14117.1|MMY14117 Mus musculus pkd2 exon 13	153	4e-33	L
gi|4150881|emb|Y14111.1|MMY14111 Mus musculus pkd2 exon 7	149	7e-32	L
gi|27802045|gb|AC011084.17| Homo sapiens chromosome 11, clo...	139	6e-29	
gi|4107471|emb|Y14116.1|MMY14116 Mus musculus pkd2 exon 12	135	1e-27	L
gi|18139513|gb|AC069281.6| Homo sapiens BAC clone RP11-44M6...	133	4e-27	
gi|5002592|emb|Y17457.1|HOSA17457 Homo sapiens LSFR3A gene,...	131	2e-26	
gi|18650683|emb|AL445931.29| Human DNA sequence from clone ...	131	2e-26	
gi|34530661|dbj|AK124783.1| Homo sapiens cDNA FLJ42793 fis,...	131	2e-26	
gi|12717949|emb|AL158207.15| Human DNA sequence from clone ...	131	2e-26	
gi|2251212|gb|AC002293.1|AC002293 Genomic sequence from Hum...	131	2e-26	
gi|2583102|gb|AC002102.1|AC002102 Homo sapiens chromosome 9...	131	2e-26	
gi|26096354|dbj|AK054397.1| Mus musculus 2 days pregnant ad...	131	2e-26	
gi|4107457|emb|Y14106.1|MMY14106 Mus musculus pkd2 exon 2	127	2e-25	L
gi|19033426|gb|AC018450.26| Homo sapiens 3 BAC RP11-80H8 (R...	127	2e-25	L

gi|9408726|emb|AL023803.3|HS616B8   Human DNA sequence from c...   125   9e-25   L C
gi|30522921|gb|AC096537.3| Homo sapiens chromosome 1 clone ...   123   4e-24
gi|23396277|gb|AC124914.3| Homo sapiens chromosome 3 clone ...   123   4e-24
gi|1669681|emb|Z82901.1|HS506G2A   Human DNA sequence from cl...   123   4e-24
gi|15142005|emb|AL513185.12| Human DNA sequence from clone ...   123   4e-24
gi|15962561|emb|AL357037.13| Human DNA sequence from clone ...   123   4e-24
gi|29293996|gb|AC080129.26| Homo sapiens 3 BAC RP11-135A1 (...   123   4e-24
gi|28973812|gb|AC116351.2| Homo sapiens chromosome 5 clone ...   123   4e-24
gi|21427846|gb|AC040977.10| Homo sapiens chromosome 17, clo...   123   4e-24
gi|27877146|gb|AC124890.8| Homo sapiens 12 BAC RP11-450G15 ...   123   4e-24
gi|16328249|gb|AC008614.6| Homo sapiens chromosome 5 clone ...   123   4e-24
gi|27764204|emb|AL109767.7|CNS018OX   Human chromosome 14 DNA...   123   4e-24

gi|4107460|emb|Y14109.1|MMY14109   Mus musculus pkd2 exon 5   123   4e-24   L
gi|2329922|gb|AC002404.1|AC002404   Human Chromosome X PAC RP...   123   4e-24
gi|16555592|emb|AL132819.6|CNS01DTO   Human chromosome 14 DNA...   123   4e-24
gi|41324131|gb|AY527817.1| Homo sapiens arachidonate 12-lip...   123   4e-24
gi|18476640|emb|AL512643.9| Human DNA sequence from clone R...   123   4e-24
gi|22324235|emb|AL121602.34|HSDJ636H5   Human DNA sequence fr...   123   4e-24
gi|21617782|gb|AC097662.5| Homo sapiens BAC clone RP11-563C...   121   1e-23
gi|21735134|gb|AC079097.6| Homo sapiens chromosome 8, clone...   121   1e-23
gi|18997243|gb|AC008665.6| Homo sapiens chromosome 5 clone ...   121   1e-23

gi|18482321|gb|AC079776.5| Homo sapiens BAC clone RP11-315H...   121   1e-23   L
gi|11225364|gb|AC044787.6|AC044787   Homo sapiens chromosome ...   121   1e-23
gi|16943977|emb|AL353093.18| Human DNA sequence from clone ...   121   1e-23

gi|2982169|gb|AC004381.1|HUAC004381   Homo sapiens Chromosome...   119   6e-23   L C
gi|6630488|gb|AC008149.14| Homo sapiens 12 BAC RP11-394J1 (...   119   6e-23   L C
gi|2578066|emb|Z98036.1|HS187N21   Human DNA sequence from cl...   119   6e-23
gi|20334687|gb|AC084871.4| Homo sapiens BAC clone RP11-701P...   119   6e-23
gi|28626577|gb|AC008121.43| Homo sapiens 12 BAC RP11-407N8 ...   119   6e-23
gi|21070548|gb|AC013242.8| Homo sapiens chromosome 10 clone...   119   6e-23
gi|20330874|gb|AC099784.2| Homo sapiens chromosome 1 clone ...   119   6e-23

gi|25815264|gb|AC131011.5| Homo sapiens X BAC RP13-314C10 (...   119   6e-23   L
gi|19697510|gb|AC107051.4| Homo sapiens BAC clone RP11-224D...   119   6e-23
gi|19551200|gb|AC084353.5| Homo sapiens BAC clone RP11-592K...   119   6e-23
gi|15321576|gb|AC079922.5| Homo sapiens BAC clone RP11-368A...   119   6e-23
gi|32490467|dbj|AP006545.1| Homo sapiens genomic DNA, chrom...   119   6e-23
gi|31745092|dbj|AP001028.7| Homo sapiens genomic DNA, chrom...   119   6e-23
gi|22202654|dbj|AP001029.5| Homo sapiens genomic DNA, chrom...   119   6e-23
gi|2547406|gb|AF024533.1|AF024533   Homo sapiens cosmid 123E1...   119   6e-23

gi|3694626|gb|AC005764.1|AC005764   Homo sapiens chromosome 1...   119   6e-23   C
gi|25136942|emb|AL591845.27| Human DNA sequence from clone ...   119   6e-23

gi|4107474|emb|Y14119.1|MMY14119   Mus musculus pkd2 exon 15   119   6e-23   L
gi|3056603|gb|AC004560.1|AC004560   Homo sapiens chromosome 1...   119   6e-23

gi|19034023|gb|AC005088.3| Homo sapiens BAC clone CTA-313A1...   119   6e-23   C
gi|41350103|gb|AC146278.3| Pan troglodytes chromosome X clo...   119   6e-23
gi|8218068|emb|AL078590.28|HSA557H15   Human DNA sequence fro...   119   6e-23

Alignments

[Get selected sequences] | [Select all] | [Deselect all]

☐ >gi|33286447|ref|NM_000297.2| L   Homo sapiens polycystic kidney disease 2 (auto
      mRNA

```
Sbjct: 1861  tgaggaagtggctagtcctgaattgctgtaacaagcacactatttatatgccctgaccac 1920


Query: 3066  cataggatgctagtctttgtgaccgattgctaatcttctgcactttaatttattttatat 3125
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Sbjct: 1921  cataggatgctagtctttgtgaccgattgctaatcttctgcactttaatttattttatat 1980


Query: 3126  aaactttacccatggttcaaa 3146
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☐ >gi|38565985|gb|BC062969.1| ■■ Mus musculus polycystic kidney disease 2, mRNA (
          IMAGE:6409512), complete cds
        Length = 3919

 Score = 2319 bits (1170), Expect = 0.0
 Identities = 2224/2578 (86%)
 Strand = Plus / Plus

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Sbjct: 489   tggaaggagaagaaggagggatggtggtagagatggatgtggagtggcgcccgggcagtc 548


Query: 434   ggaggtcggccgcctcctcggccgtgagctccgtgggcgcgcggagccggggggcttgggg 493
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Query: 494   gctaccacggcgcgggccacccgagcgggaggcggcgccggcgagaggaccagggcccgc 553
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Sbjct: 609   gctaccgcggcgcgggctcacctgagcgggaggcggcgccggctagaggaccagggcgcgc 668


Query: 554   cgtgccccagcccagtcggcggcggggacccgctgcatcgccacctcccctggaagggc 613
             ||| ||||||||| |  |||||||||||||||||||||||||||||||||| ||||| || |
Sbjct: 669   agtgtcccagccccgcgggcggcggggacccgctgcatcgccacctcccgctggagggcc 728


Query: 614   agccgccccgagtggcctgggcggagaggctggttcgcgggctgcgaggtctctggggaa 673
             |||| ||||||||||||||||||| |||||||||| || |||||||||||||||||||||
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Query: 674   caagactcatggaggaaagcagcactaaccgagagaaataccttaaaagtgttttacggg 733
             |||||||||||| || |||| | | |||||||||| |||||| ||||||||| |||||||
Sbjct: 789   caagactcatggaagagagcaacgccaaccgagagaagtacctgaaaagtgtgttacggg 848


Query: 734   aactggtcacatacctccttttttctcatagtcttgtgcatcttgacctacggcatgatga 793
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Sbjct: 849   agctggtcacttacctcttttttcctcgtagtcttgtgcatcttgacctacggcatgatga 908


Query: 794   gctccaatgtgtactactacacccggatgatgtcacagctcttcctagacacccccgtgt 853
             |||||||||||||||||||||||||||| ||||      ||||||||||| ||| ||||||||| ||||
```

```
Sbjct: 909   gctccaatgtgtactactacactcggacactgtcacagctattcatagacaccccagtgt 968


Query: 854   ccaaaacggagaaaactaactttaaaactctgtcttccatggaagacttctggaagttca 913
             | ||||| ||||||||| |||||||||||||| |||||||||| ||||||||||||||||
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Query: 914   cagaaggctccttattggatgggctgtactggaagatgcagcccagcaaccagactgaag 973
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Query: 974   ctgacaaccgaagtttcatcttctatgagaacctgctgttaggggttccacgaatacggc 1033
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Query: 1034  aactccgagtcagaaatggatcctgctctatcccccaggacttgagagatgaaattaaag 1093
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Query: 1094  agtgctatgatgtctactctgtcagtagtgaagatagggctccctttgggccccgaaatg 1153
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Sbjct: 1449  ttatagacttctcggtgtataacgcaaacattaacctgttctgtgtggtcaggttattgg 1508


Query: 1394  ttgaattcccagcaacaggtggtgtgattccatcttggcaatttcagcctttaaagctga 1453
             || |||||||||||||| ||||| ||| ||| |||||||||| || |||||||| || ||||
Sbjct: 1509  cggagttcccagcaacgggtggcgtggtaccctcttggcagtttcagcctgtaaaactga 1568


Query: 1454  tccgatatgtcacaacttttgatttcttcctggcagcctgtgagattatcttttgtttct 1513
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Sbjct: 1569  tccgctatgtcacagcctttgatttcttcctggcagcctgtgagatcatcttttgtttct 1628


Query: 1514  ttatctttactatgtggtggaagagatattggaaattcgcattcacaaactacactatt 1573
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```

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Sbjct:  1629  ttatcatttactatgtggtggaagagatattggaaattcggattcacagactgagctatt  1688


Query:  1574  tcaggagtttctggaattgtctggatgttgtgatcgttgtgctgtcagtggtagctatag  1633
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Query:  1634  gaattaacatatacagaacatcaaatgtggaggtgctactacagtttctggaagatcaaa  1693
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Sbjct:  1749  tgattaacatttaccgaatgtcaaatgcagagggggctgctacagtttcttgaagatcaaa  1808


Query:  1694  atactttccccaactttgagcatctggcatattggcagatacagttcaacaatatagctg  1753
              || ||||||||||||||||||||||| ||||||| ||||| ||||||||||||||||  ||
Sbjct:  1809  attctttccccaactttgagcatgtggcatactggcaaatacagttcaacaatataagtg  1868


Query:  1754  ctgtcacagtattttttgtctggattaagctcttcaaattcatcaattttaacaggacca  1813
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Sbjct:  1869  ctgtcatggtattttttggtctggattaagctcttcaaattcatcaattttaataggacca  1928


Query:  1814  tgagccagctctcgacaaccatgtctcgatgtgccaaagacctgtttggctttgctatta  1873
              ||||||||||||| |||||||||||||||||||||||||||||| || ||||| | || |
Sbjct:  1929  tgagccagctctccacaaccatgtctcgatgtgccaaagacctcttcggcttcaccataa  1988


Query:  1874  tgttcttcattattttcctagcgtatgctcagttggcataccttgtctttggcactcagg  1933
              ||||||| ||| || ||| | || || || ||| |||||||||||||||| ||||| ||||
Sbjct:  1989  tgttctccatcatcttcttggcatacgcacagctggcataccttgtcttcggcacccagg  2048


Query:  1934  tcgatgacttcagtactttccaagagtgtatcttcactcaattccgtatcattttgggcg  1993
              |||||||||||| ||||||||||||| ||||||||||| || ||||| |||||||||||| |
Sbjct:  2049  tcgatgacttcagcactttccaagaatgtatcttcacccagttccgcatcattttgggtg  2108


Query:  1994  atatcaactttgcagagattgaggaagctaatcgagttttgggaccaatttatttcacta  2053
              |||||||||| |||||||| ||||||||||||| |||||||||| ||| |||||||| ||||
Sbjct:  2109  atatcaacttcgcagagatcgaggaagctaaccgagttttggggccacttatttttacta  2168


Query:  2054  catttgtgttctttatgttcttcattcttttgaatatgtttttggctatcatcaatgata  2113
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Sbjct:  2169  catttgtgttctttatgttcttcattcttttgaatatgttcctggcgatcatcaatgatt  2228


Query:  2114  cttactctgaagtgaaatctgacttggcacagcagaaagctgaaatggaactctcagatc  2173
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Sbjct:  2229  cgtactctgaagtgaaatccgatctggcccagcagaaagcagaaatggaactctcagacc  2288


Query:  2174  ttatcagaaagggctaccataaagctttggtcaaactaaaactgnnnnnnnnntaccgtgg  2233
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Sbjct:  2289  ttatcagaaagggctgccaaaaagcactggtcaaactaaaactgaaaagaaacactgtag  2348


Query:  2234  atgacatttcagagagtctgcggcaaggaggaggcaagttaaactttgacgaacttcgac  2293
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Sbjct: 2349  atgccatctcagagagtctccggcaaggtggtggcaaactgaactttgatgagcttcggc  2408


Query: 2294  aagatctcaaagggaagggccatactgatgcagagattgaggcaatattcacaaagtacg  2353
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Sbjct: 2409  aagacctgaaagggaagggccatacagatgcagagattgaggccatattcactaaatatg  2468


Query: 2354  accaagatggagaccaagaactgaccgaacatgaacatcagcagatgagagacgacttgg  2413
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             ||||||||||  |||||||||||||||||| ||||||||| || || |||||| || || ||||
Sbjct: 2589  gaagtttccccagaagcctggatgactccgaggaggaggatgacgaagacagtggccata  2648


Query: 2534  gctccagaaggaggggaagcatttctagtggcgtttcttacgaagagtttcaagtcctgg  2593
             |||||||  |||||||||||||||  ||||| ||||| || |||||||||  |||||  ||||
Sbjct: 2649  gctccaggaggagggggaagcatctccagtggggtttcctatgaagagttccaagtactgg  2708


Query: 2594  tgagacgagtggaccggatggagcattccatcggcagcatagtgtccaagattgacgccg  2653
             |||| || |||||||| |||||||| ||||| ||||||||| || |||||||||||| ||||
Sbjct: 2709  tgaggcgcgtggaccgcatggagcactccattggcagcatcgtttccaagattgatgccg  2768


Query: 2654  tgatcgtgaagctagagattatggagcgagccaaactgaagaggagggaggtgctgggaa  2713
             |||| || |||||| ||||| |||||||| ||||| ||||||||| | |||||| | |||
Sbjct: 2769  tgattgtcaagctggagatcatggagcgggccaagctgaagagacgagaggtgttaggac  2828


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Query: 2894  gctcccgcccatcttcctcccaatctacagaaggcatggaaggtgcaggtggaaatgg  2951
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 Score =  196 bits (99), Expect = 3e-46
```

```
Identities = 159/179 (88%)
Strand = Plus / Plus


Query: 175  ggcgccagcctcgccgccccgggcggcctctgcgagcagcggggcctggagatcgagatg 234
            |||||| |||| || | ||| |||||||||| | ||||||||||||||||||||||||||||
Sbjct: 284  ggcgccggcctagctgtccccggcggcctcggggagcagcggggcctggagatcgagatg 343


Query: 235  cagcgcatccggcaggcggccgcgcgggaccccccggccggagccgcggcctccccttct 294
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Sbjct: 344  gagcgcatccggcaggcggccgctcgggatcccccggccggagcctcggcctcgccgtct 403


Query: 295  cctccgctctcgtcgtgctcccggcaggcgtggagccgcgataacccggcttcgaggc 353
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 Score = 71.9 bits (36), Expect = 1e-08
 Identities = 40/68 (58%)
 Strand = Plus / Plus



Query: 43   nnnnnnnnnnnnnnnnnnnnnnnnnnnnnatggtgaactccagtcgcgtgcagcctcagcagccc 102
                                         ||||| ||||||||| |||||||||||| |||| ||||
Sbjct: 164  gcgcgctgggcgccagtgagcgccatggttaactccagacgcgtgcagccgcagccgccc 223


Query: 103  ggggacgc 110
            ||||||||
Sbjct: 224  ggggacgc 231




 Score = 56.0 bits (28), Expect = 7e-04
 Identities = 55/63 (87%), Gaps = 2/63 (3%)
 Strand = Plus / Plus



Query: 3071 gatgctagtctttgtgaccgattgcta--atcttctgcactttaatttattttatataaa 3128
            |||||| |||||||||||| |||| || || |||||||||||||||||||||||||  ||||
Sbjct: 3185 gatgctggtctttgtgaccaattgttataattttctgcactttaatttattttacgtaaa 3244


Query: 3129 ctt 3131
            |||
Sbjct: 3245 ctt 3247




 Score = 50.1 bits (25), Expect = 0.045
 Identities = 25/25 (100%)
 Strand = Plus / Plus



Query: 3172 agaaatctaggtgtaaatattgagt 3196
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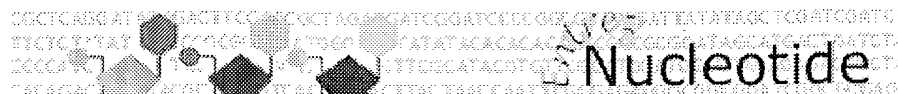
NCBI   Nucleotide

| Entrez | PubMed | Nucleotide | Protein | Genome | Structure | PMC | Taxonomy | Book |

Search Nucleotide for   Go   Clear

Limits   Preview/Index   History   Clipboard   Details

Display   GenBank   Show: 20   Send to   File   Get Subsequence   Featur

☐ **1:** <u>BC053058</u>. Mus musculus poly...[gi:31419361]   Links

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LOCUS       BC053058                3919 bp    mRNA    linear   ROD 08-OCT-2003
DEFINITION  Mus musculus polycystic kidney disease 2, mRNA (cDNA clone
            MGC:62348 IMAGE:6409512), complete cds.
ACCESSION   BC053058
VERSION     BC053058.1  GI:31419361
KEYWORDS    MGC.
SOURCE      Mus musculus (house mouse)
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 3919)
  AUTHORS   Strausberg,R.L., Feingold,E.A., Grouse,L.H., Derge,J.G.,
            Klausner,R.D., Collins,F.S., Wagner,L., Shenmen,C.M., Schuler,G.D.,
            Altschul,S.F., Zeeberg,B., Buetow,K.H., Schaefer,C.F., Bhat,N.K.,
            Hopkins,R.F., Jordan,H., Moore,T., Max,S.I., Wang,J., Hsieh,F.,
            Diatchenko,L., Marusina,K., Farmer,A.A., Rubin,G.M., Hong,L.,
            Stapleton,M., Soares,M.B., Bonaldo,M.F., Casavant,T.L.,
            Scheetz,T.E., Brownstein,M.J., Usdin,T.B., Toshiyuki,S.,
            Carninci,P., Prange,C., Raha,S.S., Loquellano,N.A., Peters,G.J.,
            Abramson,R.D., Mullahy,S.J., Bosak,S.A., McEwan,P.J.,
            McKernan,K.J., Malek,J.A., Gunaratne,P.H., Richards,S.,
            Worley,K.C., Hale,S., Garcia,A.M., Gay,L.J., Hulyk,S.W.,
            Villalon,D.K., Muzny,D.M., Sodergren,E.J., Lu,X., Gibbs,R.A.,
            Fahey,J., Helton,E., Ketteman,M., Madan,A., Rodrigues,S.,
            Sanchez,A., Whiting,M., Madan,A., Young,A.C., Shevchenko,Y.,
            Bouffard,G.G., Blakesley,R.W., Touchman,J.W., Green,E.D.,
            Dickson,M.C., Rodriguez,A.C., Grimwood,J., Schmutz,J., Myers,R.M.,
            Butterfield,Y.S., Krzywinski,M.I., Skalska,U., Smailus,D.E.,
            Schnerch,A., Schein,J.E., Jones,S.J. and Marra,M.A.
  TITLE     Generation and initial analysis of more than 15,000 full-length
            human and mouse cDNA sequences
  JOURNAL   Proc. Natl. Acad. Sci. U.S.A. 99 (26), 16899-16903 (2002)
  MEDLINE   22388257
   PUBMED   12477932
REFERENCE   2  (bases 1 to 3919)
  AUTHORS   Strausberg,R.
  TITLE     Direct Submission
  JOURNAL   Submitted (02-JUN-2003) National Institutes of Health, Mammalian
            Gene Collection (MGC), Cancer Genomics Office, National Cancer
            Institute, 31 Center Drive, Room 11A03, Bethesda, MD 20892-2590,
            USA
  REMARK    NIH-MGC Project URL: http://mgc.nci.nih.gov
COMMENT     Contact: MGC help desk
            Email: cgapbs-r@mail.nih.gov
            Tissue Procurement: Dr. Jim Lin, University of Iowa
            cDNA Library Preparation: M. Bento Soares, University of Iowa
            cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
            DNA Sequencing by: Sequencing Group at the Stanford Human Genome
            Center, Stanford University School of Medicine, Stanford, CA  94305
```

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            Web site:        http://www-shgc.stanford.edu
            Contact:   (Dickson, Mark) mcd@paxil.stanford.edu
            Dickson, M., Schmutz, J., Grimwood, J., Rodriquez, A., and Myers,
            R. M.

            Clone distribution: MGC clone distribution information can be found
            through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
            Series: IRAK Plate: 114 Row: p Column: 18
            This clone was selected for full length sequencing because it
            passed the following selection criteria: matched mRNA gi: 6679356.
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                    /db_xref="MGI:1099818"
                    /translation="MVNSRRVQPQPPGDAGRSPAPRASGPGRLVAGGAGLAVPGGLGE
                    QRGLEIEMERIRQAAARDPPAGASASPSPPLSSCSRQAWSRDNPGFEAEEDDDDDEVE
                    GEEGGMVVEMDVEWRPGSRRSASSSAVSSVGARGRGLGSYRGAAHLSGRRRRLEDQGA
                    QCPSPAGGGDPLHRHLPLEGQPPRVAWAERLVRGLRGLWGTRLMEESNANREKYLKSV
                    LRELVTYLFFLVVLCILTYGMMSSNVYYYTRTLSQLFIDTPVSKTEKTNFKTLSSMED
                    FWKFTEGSFLDGLYWKAQTSNHTQADNRSFIFYENLLLGVPRLRQLRVRNGSCSIPQD
                    LRDEIKECYDVYSVSSEDRAPFGPRNGTAWMYTSEKELNGSSHWGIIASYSGAGYYLD
                    LSRTREETAAQLAGLRRNFWLDRGTRAAFIDFSVYNANINLFCVVRLLAEFPATGGVV
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                    /note="ion_trans; Region: Ion transport protein. This
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                    This family is 6 transmembrane helices in which the last
                    two helices flank a loop which determines ion selectivity.
                    In some sub-families (e.g. Na channels) the domain is
                    repeated four times, whereas in others (e.g. K channels)
                    the protein forms as a tetramer in the membrane. A
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                        two helices but is not the Pfam family due to it lacking
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